UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.-The first election to a Geographical Studentship will be held at the end of Hilary Term 1892. The student at the time of his election must have passed all the examinations for his B.A. degree in the University of Oxford, but must not be of more than eight years' standing from matriculation. Previous to his election he must have attended the lectures of the Reader in Geography in at least two terms. Information as to the conditions of tenure may be obtained from the Reader in Geography.

The Report of the Delegacy of Non-Collegiate Students was presented to Convocation on Wednesday. It shows that the list of matriculations is rather larger than in the preceding year, but the total number of undergraduates has somewhat decreased. The total number on the books (440) is the largest which has yet been reached. Thirty-six took the B.A. degree, and nine-teen the M.A. during the year. The Delegates notify that they admit, without examination, students in any special branch of study who do not desire to pass through the Arts course, and can show evidence of fitness for their special subject. Sixteen students have availed themselves of this privilege during the The balance-sheet appended shows that the financial year. condition is satisfactory. The total receipts exceeded the expenditure by £550, and the accumulated balance in the hands of the Delegacy at the close of the year was $\pounds 2284$.

CAMBRIDGE .- Mr. J. Macalister Dodds, of Peterhouse, has heen elected Chairman of the Examiners for the Mathematical Tripos, Part I.

A petition from 2689 pe sons residing in New Zealan1 has been received by the Vice-Chancellor, praying that the Senate will grant degrees to properly qualified women. The signatories include Sir George Grey, K.C.B., formerly Governor of New Zealand, most of the Ministers of the Colonial Government, and many professors and graduates of the University of New Zealand.

Lord Wal-ingham, F.R.S., High Steward of the University, offers annually a gold medal to B.A.'s of not more than two years' standing for the best monograph or essay giving evidence of original research on any botanical, geological, or zoological subject ; zoology being understood to include animal morphology and physiology, and an essay on any subject of chemical physiology being valued according to its physiological rather than its chemical importance.

MR. R. W. STEWART, B.Sc. (Lond.), has been appointed Assistant Lecturer and Demonstrator in Physics at the University College of North Wales, Bangor.

SCIENTIFIC SERIALS.

THE American Meteorological Journal for October con-tains :- A short memoir of the late Prof. W. Ferrel, by Prof. A McAdie, with a complete list of his scientific contributions, from 1853 to 1891; his last paper, which appeared in our columns in April 1891, was entitled "The High-pressure Area of November 1889 in Central Europe."—The mineral waters of Ypsilanti and other places in Michigan, by Dr. E. N. Brainerd.— Cloud observations at sea, by Prof. C. Abbe. This is a preliminary report relative to the principal features of the work done by him during the recent cruise of the Pensacola to the West Coast of Africa. A number of experiments were made to determine the relative speed and direction of movement of the various strata of air, by means of clouds and small balloons. The experiments showed that the use of balloons is practicable both on sea and land, and gives accurate results. The followboth on sea and land, and gives accurate results. ing are some of the results of the author's observations : the vertical circulation increases and the horizontal circulation diminishes in the doldrums; the horizontal movement is a maximum at high latitudes; the bases of the cumuli are lower and their tops higher in the low latitudes; if there be any general east wind in the upper regions at the doldrum it is above the clouds, and therefore not observable.—The last article is by Dr. Leudet, on the action of climates at elevated stations on diseases of the chest.

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described, as also two new species: Hol. virius and Hol. superbus.-Ichthyological notes from the Museum of the Academy, by S. Herzenstein, being a description of the following new species: Cottus nivosus, Centridermichthys alcicornis, Hypsagonus gradiens, Stichæus grigoriewi, St. dictyogrammus, Chirolophus japonicus, Pleuronectes obscurus, Pl. japonicus, Pl. bicoloratus (incompletely described by Basilewsky), Hippoglossus grigoricovi, Alburnus charusini, and Nemachilus kuschake-witschi. - On the extraordinary pheno nena presented by the great comet of 1882, by Th. Bredichin. After having given in a preceding paper his reasons for considering the interior tube of that comet as an anomalous tail, the author applies the same explanation to the exterior tube. —On two new laws of celestial mechanics, by H. Struve. In addition to the previously communicated results of observations made on the satellites of Saturn with the 30-inch refractor, Prof. Struve points out the remarkable relations which exist between the satellites Mimas and Tethys on the one side, and Enceladus and Dione on the The observations of Mimas have shown that its other side. orbit has an inclination of 1° 26' on the equator of Saturn, and that its nodes have a motion of 1° every day, so that by the end of the year the orbit returns to its previous position; moreover, a considerable acceleration has been noticed in the notation of Mimas during the last few years. From these facts M. Struve deduces the following law:-"'Four times the average movement of Tethys, minus twice the average movement of Mimas, is always equal to the sums of the average Tethys always take place about a point which is situated halfway between the ascending nodes of their orbits on the equator of Saturn. They may move off this point for about 48° , and this libration is performed in sixty-eight years. (2) The conjunctions of Enceladus and Dione always coincide with the perisaturn of Enceladus, or, at least, they must oscillate around this point." Several important conclusions relative to the mass of Rhea and that of the rings may be deduced from these laws. -On the genus Obolus (Eichwald), by A. Mickwitz -- On a personal equation in photometric observations of stars, by E. Lindemann. — The mammals of the Gan-su expedition of 1884-87, by Eug. Büchner (German). The few species of this very interesting fauna which have been brought to St. Petersburg, are described, the remainder being kept in the Museum of Irkutsk.—On the rotation of Jupiter, by A. Belopolsky (in German). From a perusal of all available data, the author finds the rotation-period to be equal to 9h, 55m, in the latitudes from 10° to 45° , while in the zone o° to 5° , it is only 9h, 50m.— On the Ammonites of the Artinsk strata, by A. Karpinsky (German). The collection is derived from North-East Russia; the new species are : Pronorites postcarbonicus, Pr. præpermicus, Parapronorites tenuis, Gastrioceras suessi, Agathiceras uralicum, Popanoceras krasnopolskyi, and Thalassoceras gemmellaroi. - On a new process for separating iron-oxide from aluminium, by F. Beilstein and R. Lüther.—Chemical notes, by N. Beketoff.— On the use of incandescent light for self-registering instruments, by H. Wild.-On artificial amphibolite, by K. Khrustschoff.

In the Botanical Gazette for September and October, Mr. T. Holm continues his series of articles on the minute comparative anatomy of American grasses. Brief abstracts are given of the botanical papers read at the Washington meeting of the American Association for the Advancement of Science, and at that of the Botanical Club of the same Association. Other papers are chiefly of interest to American botanists.

SOCIETIES AND ACADEMIES. LONDON.

Zoological Society, November 3.-Prof. W. H. Flower, F.R.S., President, in the chair.-The Secretary read a report on the additions that had been made to the Society's Menagerie during the months of June, July, August, and September, 1891, and called attention to certain interesting accessions which had been received during that period.—The following objects were exhibited :—(1) On behalf of Mr. F. E. Blaauw, a stuffed Bulletin de l'Académie des Sciences de St. Pétersbourg, new series, vol. ii., No. I.—On the scales of Holoptychius found in Russia, by Dr. Rohon (French). The histology of the same is

Australian Mammal Notoryctes typhlops; (3) by Mr. G. A. Boulenger, an Iguana with the tail reproduced; (4) by Mr. R. Gordon Wickham, a very fine pair of horns of the Gemsbok (Oryx gazella) from Port Elizabeth, South Africa; and (5) by Dr. Edward Hamilton, a photograph of an example of the Siberian Crane (Grus leucogeranus), shot on the i-land of Barra, Outer Hebrides, in August last.—Mr. R. Lydekker gave a description of some Pleistocene Bird-remains from the Sardinian and Corsican Islands. These belonged mostly to recent forms, but to genera and species which in several instances had not been found fossil. They showed rather more of an African character than the present avifauna of these islands.—Mr. R. Lydekker also read some notes on the remains of a large Stork from the Allier Miocene. These remains were referred to the genus, closely allied to *Ciconia*, lately named *Pelargopsis*, but which (that term being preoccupied) it was now proposed to rename *Pelargoides.*—Mr. R. Lydekker also exhibited and made remarks on the leg-bones of an extinct Dinornithine Bird from New Zealand, upon which he proposed to base a new species allied to Pachyornis elephantopus (Owen), and to call it, alter the owner of the specimens, Pachyornis rothschildi .- Dr. A. Gunther, F.R.S., read a description of a remarkable new Fish from Matritius belonging to the genus *Scorpana*, which he proposed to call *Scorpana frondosa*.—A communication was read from Mr. Roland Trimen, containing an account of the occurrence of a specimen of the scarce Fish Lophotes cepedianus, Giorna, at the Cape of Good Hope.—A communication was read from the Hon. L. W. Rothschild, giving a description of a little-known species of *Papilio* from the Island of Lifu, Loyalty Group.—Mr. R. J. Lechmere Guppy read some remarks on a fine specimen of *Pleurotomaria* from the island of Tobago.—A communication was read from Mr. L. Péringuey, giving an account of a series of Beetles collected in Tropical South-western Africa by Mr. A. W. Eriksson.

Entomological Society, November 4.-Dr. D. Sharp, F.R.S., Vice-President, in the chair.-Mr. W. F. Kirby exhibited a series of a very dark-coloured form of Apis reared by Mr. John Hewitt, of Sheffield, from bes imported from Tunis, and which he proposed to call "Punic bes."—Mr. C. G. Barrett exhibited five melanic specimens of *Aplecta nebulosa*, reared from larvæ collected in Delamere Forest, Cheshire, and described in the Proceedings of the Lancashire and Cheshire Natural History Society as A. nebulosa, var. Robsoni. Mr. Barrett also exhibited a beantiful variety of Argynnis aglaia, taken in Norfolk by Dr. F. D. Wheeler, and two specimens of Lycana argiades, taken in August 1885, on Bloxworth Heath, Dorsetshire. - Mr. H. St. John Donisthorpe exhibited a collection of Coleoptera, comprising about thirty-six species, made in a London granary in 1890 and 1891. The genera represented included Sphodrus, Calathus, Quedius, Creophilus, Omalium, Trogosita, Silvanus, Lathridius, Dermestes, Anthrenus, Ptinus, Niplus, Anobium, Blaps, Tenebrio, Calandra, and Bruchus. --Mr. A. B. Farn exhibited a series of specimens of Eubolia lineolata, bred from a specimen taken at Yarmouth. The series included several remarkable and beautiful varieties, and the size of the specimens was much above the average.-The Rev. Dr. Walker exhibited specimens of Argynnis ino and A. pales, from Norway.--Mr. B. A. Bower exhibited, for Mr. J. Gardner, specimens of Nephopteryx splendidella, H. S., Botys lupulinalis, Clk., and Bryotropha obscurella, Hein., taken at Hartlepool.-Mr. R. Adkin exhibited two very dark specimens of *Peronea* vristana, from the New Forest.—Colonel C. Swinhoe exhibited, and remarked on, types of genera and species of moths belong-ing to the *Tineina*, all of which had been described by Walker, and placed by him amongst the *Lithosidæ*.—Mr. H. Goss exhibited specimens of *Callimorpha hera*, taken by Major-General Carden in South Devon in August last, and observed that the species appeared to be getting commoner in this country, as General Carden had caught seventeen specimens in five days. Mr. Goss said that the object of the exhibition was to ascertain the opinion of the meeting as to the manner in which this species had been introduced into this country. A discussion on the geographical distribution of the species ensued, in which Mr. G. T. Baker, Colonel Swinhoe, Mr. McLachlan, Mr. Verrall, G. I. Baker, Colonel Swinhoe, Mr. McLachian, Mr. Verrall, Captain Elwes, Mr. Barrett, Mr. Fenn, and others took part. --Mr. C. J. Gahan contributed a paper entitled "On South American Species of Diabrotica," Part III.--Mr. McLachlan contributed a paper entitled "Descriptions of New Species of Holopthalmous Ascalaphida."--Mr. W. L. Distant communi-cated a paper entitled "Descriptions of Four New Species of

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the Genus Fulgora."—Mr. F. Enock read a paper entitled "Additional Notes and Observations on the Life-history of Alypus piceus." Every detail in the life-history of this spider was most elaborately illustrated by a large number of photographs, made by Mr. Enock from his original drawings, and shown by means of the oxy-hydrogen lantern. A discussion followed, in which Mr. C. O. Waterhouse, Dr. Sharp, Mr. G. C. Champion, the Rev A. E. Eaton, and Mr. P. Crowleytook part.

Anthropological Institute, November 10.—Dr. Edward B. Tylor, F.R.S., President, in the chair.—Mr. Francis Galton exhibited, on behalf of Lady Brooke, a photograph of a human figure carved on a rounded sandstone rock in Sarawak ; the rock is about twelve feet in height, and the sculpture is in high relief and of the size of life. Mr. Galton also exhibited some imprints of the hand, by Dr. Forgeot, of the Laboratoire Criminale, Lyon.—Dr. Tylor read a paper on the limits of savage religion. In defining the religious systems of the lower races, so as to place them correctly in the history of culture, careful examination is necessary to separate the genuine developments of native theology from the effects of intercourse with civilized foreigners. Especially through missionary influence since 1500, ideas of dualistic and monotheistic deities, and of moral government of the world, have been implanted on native polytheism in various parts of the globe. For instance, as has lately become clear by the inquiries of anthropologists, the world-famous Great Spirit of the North American Indians arose from the teachings of the Jesuit missionaries in Canada early in the seventeenth century. This and analogous names for a Supreme Deity, unknown previously to native belief, have since spread over North America, amalgamating with native doctrines and ceremonial rites into highly interesting but per-plexing combinations. The mistaken attribution to barbaric races of theological beliefs really belonging to the cultured world, as well as the development among these races of new religious formations under cultured influence, are due to several causes, which it is the object of this paper to examine : (1) direct adoption from foreign teachers; (2) the exaggeration of genuine native deities of a lower order into a God or Devil; (3) the conversion of native words, denoting a whole class of minor spiritual beings, such as ghosts or demons, into individual names, alleged to be those of a Supreme Good Deity or a rival Evil Deity. Detailed criticism of the names and descriptions of such beings in accounts of the religions of native tribes of America and Australasia was adduced, giving in many cases direct proof of the beliefs in question being borrowed or de-veloped under foreign influence, and thus strengthening the writer's view that they, and ideas related to them, form no original part of the religion of the lower races. The problems involved are, however, of great difficulty, the only hope of their full solution in many cases lying in the researches of anthropologists and philologists minutely acquainted with the culture and languages of the districts; while such researches will require to be carried out without delay, before important evidence still available her discovered evidence, still available, has disappeared.

PARIS.

Academy of Sciences, November 9.-M. Duchartre in the chair .-- On the use of chronophotography for the study of machines constructed for aërial locomotion, by M. Marey. It is known that, in the case of a plane moving in a fluid medium, the centre of pressure only coincides with the centre of figure if the plane be normal to the direction of its motion ; but if the plane makes an angle with its trajectory, the centre of pressure occurs in advance of the centre of figure to an extent which increases as the plane forms a more acute angle with the direction of motion, and as its velocity of translation is increased. This principle is strikingly illustrated by some photographs of a specially constructed falling body taken at intervals of a twentieth of a second. The body first described a sensibly parabolic curve, it then rose slightly, and passed over a convex curve before reaching the ground. The figure accompanying the paper shows clearly that the inflexions of the body's trajectory depend on the variations of its velocity, and the inclination of its surface with respect to the direction of motion.—On the laws of the intensity of light emitted by phosphorescent bodies, by M. Henri Becquerel. The author develops formulæ to represent the relation between the intensities of light emitted by phosphorescent phosphorescent bedies and the intensities of light emitted by phosphorescent bodies and the duration of illumination, and compares the results of some of

his father's observations with those obtained by calculation. The agreement of the two sets of numbers is very close, even when the intensity was taken some thirty minutes after the body had been emitting light. A relation is also established between the intensity and the time that the body was exposed to light .the intensity and the time that the body was exposed to light. — Study of boron phospho-iodides, by M. Henri Moissan. (See Notes, p. 67.)—M. Haton de la Goupillière made some re-marks on the paper read by Sir William Thomson before the Royal Society on April 9, "On Electrostatic Screening by Gratings, &c.," saying that he had published some similar results in 1859.—Experimental determination of the velocity of propagation of electro-magnetic waves, by M. R. Blondlot. Experiments have been made between wave-lengths 8'94 and 35'36 metres, and the results show that all electrical undulations have a velocity of propagation of about 297,600 kilometres per second.—On algebraic integrals of the differential equation of the first order, by M. Autonne.—On surfaces with rational generators, by M. Lelieuvre.—Theory of turbo-machines, by M. Rateau.—A simple method of verifying the centres of the object-glasses of microscopes, by M. C. J. A. Leroy.—On the existence of acid or basic salts of monobasic acids in very dilute elutions by M. Draid Berthelet. solutions, by M. Daniel Berthelot. The author has studied very dilute solutions near the point of neutralization, using HCl and baryta water at a concentration of 0.01 equivalent per litre, by the method of measuring the electric conductivities. He concludes that acid and basic salts are not destroyed by dilution, even very dilute solutions containing traces undecomposed.-On the formation of hydrates at high temperatures, by M. G. Rousseau.—On a double chloride of copper and lithium, by M. A. Chassevant. A substance of the composition 2{CuCl₂.LiCl} + 5H₂O has been obtained. It is decomposed by water, but is soluble to a red-brown solution in a concentrated cluticar G lithium chloride form which is new hexagenetication by water, but is soluble to a red-blown solution in a concentrated solution of lithium chloride from which it may be recrystallized. —Researches on digitaleïn, by M. J. Houdas.—On isocin-chonines, by MM. E. Jungfleisch and E. Leger.—Estimation of fats in milk products, by MM. Lezé and Allard.—Ptomaïnes ex-tracted from urine in cases of some infectious maladies, by M. A. B. Griffiths. The ptomaïne from scarlet fever has the composition $C_5H_{12}NO_4$, that from diphtheria $C_{14}H_{17}N_2O_6$; they have also been prenared from pure cultures on pertonized gelatine have also been prepared from pure cultures on pertonized gelatine of Micrococcus scarlatinæ and Bacillus diphtheriæ respectively. The ptomaine from the urine of a case of mumps has the constitution $NH : C(NH_2).N(C_3H_7).CH_2.CO_2H$. None of the three ptomaïnes described are constituents of normal urine.— On the exterior form of the muscles of man with respect to the movements executed (experiments made by chronophotography), by M. G. Demeny.—On the formation of the peripheral nervous system of vertebrates, by M. P. Mitrophanow.—On the effects of parasitism on Ustilago antherarum, by M. Paul Vuillemin .-Meteorological observations made at Rodez, by M. des Vallières.

AMSTERDAM.

Royal Academy of Sciences, October 31 .- Prof. van de Sande Bakhuyzen in the chair.—Prof. P. H. Schoute offered some general remarks on Lemoine's two problems of stamps : In how many different ways a ribbon of p stamps and a rectangular sheet of pq stamps can be folded up in one? (compare vol. i. p. 120 of the "Théorie des Nombres" of E. Lucas). He reduced the first problem to a question in the theory of permutations, gave the number x_p of its solutions up to p = q, and showed why the number x_{p_1q} of the solutions of the second problem must

surpass the expression $\binom{p+q-2}{p-1} x_p x_q$ — Prof. B. J. Stokvis

made a contribution to our knowledge of mutual antagonism and the combined action of mutual antagonists. In experimenting on the isolated and freely pulsating frog's heart, he stated that digitaline on the one side, and muscarine (or chinine) on the other, were to be considered as mutual antagonists for this organ, and displayed their antagonistic action, whichever of the two might be applied first. In another series of experiments he studied the action of muscarine and digitaline flowing at the same time with the nourishing blood through the isolated frog's heart, and found that the greatest antagonistic action, for Instance of digitaline, was displayed when very dilute solutions (1:25,000 or 1:33,333) were applied at the same time as moderately strong solutions of muscarine. Finally, he stated that the isolated frog's heart recovered much faster and much more easily by normal blood when it was previously poisoned by muscarine and digitaline combined than when it was poisoned

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by the same or even a lower dose of muscarine alone.—MM. S. Hoogewerff and W. A. van Dorp gave an account of the action of an aqueous solution of ammonia on phthalic chloride. If care is taken to keep the liquids cool in mixing, about 40 per cent. of the weight of the chloride is converted into orthocyanobenzoic acid, C₆H₄ CN

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS, PAMPHLETS, and SERIALS RECEIVED. BOOKS.—The Land of the Lamas, W. W. Rockhill (Longmans).—Araphi-mixis; oder Die Vermischung der Individuen: A. Weismann (Jeaa, Fischer).—Primitive Culture; 2 vols., 3rd edition, revised: Dr. E. B. Tylor (Murray).—Memoirs of the Geological Survey of India, vol. xxiii, Geology of the Central Himálayas; J. L. Griesbach (Calcuta).—Cl'Homme dans la Nature : P. Topinard (Paris, Alcan).—Outlines of Physiological Chemistry. and edition : F. C. Larkin and R. Leigh (Lewis).—My Personal Experiences in Equatorial Africa : T. H.-Parke (Low).—An Introduction to the Theory of Value : W. Smart (Macmillan).—Quantitative Chemical Analysis; F. Clowes and J. B. Coleman (Churchill).—At Hand-book of Industrial Organic Chemistry : S. P. Sadler (Lippincott).—Farm Crops ; J. Wrightson (Cassell). —Our Common Birds and how to Know Them : J. B. Grant (Gay and Bird). —The Microscope and its Relations, 7th edition : Dr. W. H. Dallinger (Churchill).—How to Use the Aneroid Baroneter : E. Whymper (Murray). —Beobachtungen der Russischen Polar-station auf Nowaja Semija, 1 Theil, Magnetische Beobachtungen : K. Andrejeff (St. Petersburg).—Selected Essays of Arthur Schopenhauer : E. Ba Ka (Bell).—About Ceylon and Borneo : W. J. Clutterbuck (Longmans).—With Axe and Rope in the New Zealand Alps : G. E. Mannering (Longmans).—The Microscope and Histo logy, Part 1, The Microscope and Microscopical Methods : S. H. Page (Ithaca, N. Y.).—Anthropogenie oder Entwickelungsgeschichte des Men-schen, 2 vols.: E. Haeckel (Leipzig, Engelmann).

PAMPHLET .- A Memoir on the Coefficients of Numbers : B. Seal (Calcutta).

SERIALS.—Bacteriological World, vol. i. No. 10 (Battle Creek, Mich.).— Proceedings of the Aristotelian Society, vol. i., No. 4, Part 2 (Williams and Norgate).—Himmel und Erde, November (Berlin, Pactel).—Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg, nouvelle série ii. (*xxiv.) (St. Pétersbourg).—Harvard University Bulletin, No. 50.

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